

US Army Medical Research and Materiel

Technology Available for Licensing



Features and advantages:

- Sequestrin protein and sequence have potential as diagnostic, prognostic, and therapeutic tools

- Mediates cytoadherence of parasite to infected erythrocytes

- Has a high affinity for CD36, a human cell surface glycoprotein

- Binding domain of sequestrin to CD36 has been determined

- May be broadly effective against different strains of *P. falciparum*

Sequestrin of *Plasmodium falciparum*

This invention is a method for producing sequestrin, a 215 - 250 kD size protein that is found on the surface of *Plasmodium falciparum*, the parasite responsible for the most severe type of human malaria. The same size sequestrin protein is found on all strains of *P. falciparum*, making it a potentially useful DNA-based vaccine, and therapeutic and diagnostic agent. The method comprises culturing a host cell under conditions such that a sequestrin cDNA fragment encoding 1958 nucleotides is expressed and sequestrin protein is produced.

Researchers believe that sequestration, the ability of *P. falciparum* infected erythrocytes to sequester and develop in the deep vascular beds of various tissues, is responsible for the severity of malaria symptoms and associated worldwide mortality. Sequestrin is one of ten or so proteins thought to be responsible for the cytoadherence of *P. falciparum* infected erythrocytes to post-capillary venular endothelium. These proteins allow the parasite to develop in a microenvironment of low oxygen tension and to evade splenic immune surveillance. Sequestrin binds with high affinity to cell determinant (CD) 36, an 88 kD glycoprotein found on the surface of human microvascular endothelium, platelets, and monocytes. Non-cytoadherent laboratory parasite strains carry the sequestrin gene but fail to express the protein.

Patent Status

Identification of the CD36-binding domain of sequestrin offers great promise for

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Conserved within this domain, it is likely to be highly effective among different parasite strains.

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Point of Contact

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